REMARKS

Amendment: This is the filing of an amendment under 37 CFR 1.111 responsive to the office action dated August 23, 2005.

Claims:

With regard to the 35 USC 103 rejection of claim 1 over Lyons, applicant notes that Lyons recites a Bragg grating (col 2 line 56) in direct contact with a fluid to be measured, while the sensor of the present invention contains no Bragg grating whatsoever. The present invention recites a uniform thickness metal layer which is sufficiently thin to allow evanescent coupling through it. Lyons contains no teaching of placing a uniform thickness of metal over a cladding grating because it would be exceedingly difficult to do so, and irrelevant to fabricating a grating. Internal or external gratings in optical fibers are commonly written using either a phase mask method or an interferometer method, both of which utilize narrowband optical wavelengths to achieve the extremely short feature lengths required for gratings, and impose a periodic variation of the index of refraction of either the optical fiber core or the cladding of the optical fiber. Additionally, gratings are typically written on a fiber where it is desired to have wavelength-

dependant transmission or reflection characteristics, and these wavelength dependant transmission or reflection characteristics. Additionally, the coupling of a fluid which contains a slurry of various particle sizes (such as micron-sized oil droplets) to the flat sensor surface of the present invention is superior to the coupling of a fluid to the external grating of Lyons, which has surface features not found in the present invention, and which would tend to trap such micro-particles. In summary, the structure of Lyons includes a grating (col 3 line 48) not found in the present invention, and such grating results in the function of narrowband response (col 3 line 50), neither structure nor function which is present in the present invention. The present invention has a comparatively broadband response associated with the uniform thickness metal layer, comprising structure and function which is not found in Lyons. Measurement in the present invention which is done over several wavelengths is related to broadband losses of optical energy to the fluid, and not reflection in a grating with an index-dependant response as in Lyons. Nevertheless, applicant has amended claim 1 to recite "a substantially uniform thickness" of metal to avoid any possibility of suggesting a grating in the metal structure of the present invention.

With regard to the 35 USC 103 rejection of claim 2 over Lyons, applicant notes that measuring the index of refraction for a material by coupling the fluid to a grating is necessarily a wavelength-dependant measurement involved in finding a wavelength for which the reflection or transmission of the sensor grating is a minimum or a maximum, while the measurement of the present invention is largely a wavelength-independent insertion loss. The function performed by the Lyon sensor compared to the present invention figure 4 et al is fundamentally different, and amended claim 1 does not recite nor is anticipated by the structure of Lyons. Reconsideration is requested.

With regard to the 35 USC 103 rejection of claim 4 over Lyons, applicant notes that no metal layer is found in Lyons, and no grating is found in the present invention. As claim 1 is allowable, dependant claim 4 is now allowable.

With regard to the 35 USC 103 rejection of claims 8,9,11 over Lyons, applicant notes that the sensor of Lyons operates by coupling the fluid to be characterized to a narrowband grating response, whereas the sensor of the present invention operates by broadband coupling of optical energy out of the fiber and measuring the amount of optical energy so removed.

With regard to the 35 USC 103 rejection of claims 5 & 6 over Lyons in view of Schoch, applicant notes that the sensor of Schoch is measuring bulk transmission of light though a fluid, while the sensor of the present invention is measuring the optical energy coupled out of an optical fiber and into a fluid through a localized metal layer. Applicant notes that none of the structure of the present invention independent claim 1 (optical fiber or metal layer coupling optical energy out of the fiber) is found in the structure of Schoch.

With regard to the 35 USC 103 rejection of claims 1 & 12 over Vali, applicant notes that Vali recites an optical fiber which has the cladding uniformly reduced in thickness (col 1 line 68 - col 2 line 5) over the entire extent of the fiber, which is placed in the fluid to be characterized. Applicant notes that the reduction of cladding thickness in Vali is over the entire length of fiber exposed to the fluid (see Vali fig 3), while the sensor of the present application has reduced cladding in the region of the side polished fiber and metal layer (see current invention figure 4). Vali does not have a side polished fiber or a thickness of metal placed over the measurement region, and the present invention does not couple optical energy out of the fiber over the entire extent of the fiber. Nevertheless, applicant has amended claims 1 and 12 to recite "said

cladding thickness sufficient to fully contain said guided light in other parts of said fiber" to clearly indicate the cladding contains and guides the optical energy in regions other than the side polished region.

With regard to the 35 USC 103 rejection of claim 2, 3, 7 over Vali, applicant notes that amended claims of the current invention which recites a structure having reduced cladding thickness in a side polished area which is clearly distinguishable from the cladding-reduced fiber of Vali.

With regard to the 35 USC 103 rejection of claims 8-11 over Vali, applicant has amended claim 8 to explicitly recite the structure of a side polished fiber, which has a cladding thickness reduced only in the region of side polishing. Claims 9-11 are allowable since claim 8 is now allowable.

With regard to the 35 USC 103 rejection of claim 13-19 over Vali, applicant has amended claim 12 to include the limitation of cladding reduction only in the side polished fiber region. As independent claim 12 is now allowable, claims 13-19 are also allowable.

With regard to the 35 USC 103 rejection of claim 20 over Schoch, applicant notes that with allowable independent claim 12, dependent claim 20 is now allowable.

Attorney of Record and new Assignee: New assignee IFOS (Intelligent Fiber Optic Systems) has included a PTOSB/82 Revocation of previous power of attorney and appointment of the following practitioner as Attorney of Record:

Jay Chesavage
3833 Middlefield Rd.
Palo Alto, Ca. 94303
PTO Reg No 39,137
PTO Customer Number 24346.

The previous assignee, Oluma, Inc. has transferred ownership of this case to new assignee IFOS (Intelligent Fiber Optic Systems, Inc). Attached please find an assignment statement under 37 CFR 3.73(b) and a copy of the assignment of this case from Oluma to IFOS.

With this amendment, the claims of the present amendment are in condition for allowance. Please direct all correspondence to the Attorney of Record:

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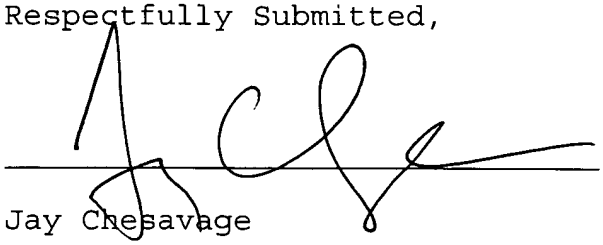
Respectfully Submitted,



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